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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/625,207 | 07/23/2003 | Anthony D. Monk | 7784-000600 | 8374 |
| 27572 | 7590 | 11/16/2004 | EXAMINER | |
| HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303 | | | ALSOMIRI, ISAM A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3662 | |

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/625,207 | MONK, ANTHONY D. |
| Examiner | Art Unit | |
| Isam A Alsomiri | 3662 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 July 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7,9-11,13-29 and 31-37 is/are rejected.
- 7) Claim(s) 8,12 and 30 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 March 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-10, 14, 16-18, 20-23, 25-27, 31-33, 35-36 are rejected under 35

U.S.C. 102(b) as being anticipated by Meierbachtol US 6,275,182. Re claims 1, 14, 25, 31 and 35-36, Meierbachtol discloses in figures 1-5 reducing depolarization of a wireless signal passing through an antenna radome, comprising: dividing the wireless signal into oppositely polarized signals (+45° and -45°), determining an angle of incidence of the signal relative to the radome 10A, from said determined angle of incidence, determining at least one offset to signal depolarization attributable to the radome, and applying the offset to the signal to reduce depolarization of the signal (see Abstract).

Re claim 2, Meierbachtol teaches the applying is based on at least one pointing angle of the antenna (see Abstract).

Re claim 3, Meierbachtol teaches applying the offset to the signal based on a desired polarization angle of the signal (see col. 3 lines 24-29).

Re claim 4, Meierbachtol teaches storing the at least one offset in a memory; and retrieving the at least one offset from the memory based on at least one pointing angle of the antenna (see col. 2 lines 17-20).

Re claims 5, 20, 27, and 33, it's inherent that wherein applying the offset comprises interpolating among a plurality of offsets (frequency, look angle (phase), polarization, Abstract).

Re claim 6, Meierbachtol teaches determining at least one offset is performed relative to a selected signal frequency (see col. 2 lines 24-29).

Re claims 7, 17, 23, 26, and 32, Meierbachtol teaches wherein determining at least one offset comprises using an angle of signal incidence to determine a radome transmission coefficient (see col. 2 lines 24-29, operating frequency).

Re claim 9, Meierbachtol teaches determining at least one offset comprises determining at least a phase offset (col. 1 line 65 – col. 2 line 20).

Re claims 10 and 16, Meierbachtol teaches applying the offset comprises combining at least phase offset with the signal (see col. 1 line 65 – col. 2 line 20).

Re claim 18, it's inherent the applying is performed periodically during movement of the antenna to compensate for the radome errors.

Re claims 21 and 22, it's inherent that the compensation signal (offset signal) is for compensation on the whole radome which includes the claimed "same side" and "another side".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 37 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Meierbachtol US 6,275,182 in view of Britt.

Re claim 37, Meierbachtol discloses in figures 1-5 reducing depolarization of a wireless signal passing through an antenna radome, comprising: dividing the wireless signal into oppositely polarized signals (+45° and -45°), determining an angle of incidence of the signal relative to the radome 10A, from said determined angle of incidence, determining at least one offset to signal depolarization attributable to the radome, and applying the offset to the signal to reduce depolarization of the signal (see Abstract). It is inherent that the system of Meierbachtol includes an adjustment circuit that applies a variable differential phase shift to the signals in accordance with a desired linear polarization plane orientation angle, to produce similar and the desired phase patterns. However, even if Meierbachtol does not teach the claimed adjustment circuit, having and adjustment circuit according to the claim is well known and it would be obvious to modify Meierbachtol's system to include such adjustment circuit. Britt teaches an adjustment circuit that applies a variable differential phase shift to the signals in accordance with a desired linear polarization plane orientation angle (see Abstract). It would had been obvious to modify Meierbachtol's system to include such adjustment circuit to produce similar or desired phase patterns.

Claims 11, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meierbachtol US 6,275,182.

Re claims 11 and 15, Meierbachtol is silent about determining at least one offset comprises resolving radiated field components of the signal into RHCP and LHCP components. However, the offset signal is based on the polarization, therefore, it would be obvious if not inherent to resolve the signals into RHCP or LHCP component to calculate the offset signal, and because resolving RHCP and LHCP is well known and would be obvious to incorporate such teaching in Meierbachtol's system.

Re claim 13. Meierbachtol is silent about converting between a radio frequency of the signal and an intermediate frequency using one of a downconverter and an upconverter. However, using a downconverter and upconverter is well known and would be obvious to include one of downconverter or an upconverter to convert between the RF signal and IF signal, for the offset signal.

Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meierbachtol US 6,275,182 in view of Gratt et al. US 5,149,011.

Re claim 19, Meierbachtol is silent about interpolating among a plurality of predetermined amplitude offsets to determine the at least one offset. Gratt teaches using solutions of certain algorithms determine the claimed at least one offset, including interpolating amplitude offsets (see Abstract, col. 3 line 55 – col. 4 line 30). It would have been obvious to compensate for amplitude offsets to compensate for the boresight errors more accurately.

Re claim 24, Meierbachtol teaches using at least one offset value stored in a memory to determine a differential phase (see col. 2 lines 15-20). However, Meierbachtol is silent about determine a differential amplitude. Gratt teaches determining the boresight error, which includes determining the differential amplitude (see col. 3 line 55 – col. 4 line 30). It would have been obvious to compensate for amplitude offsets to compensate for the boresight errors more accurately.

Claims 28 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meierbachtol US 6,275,182 in view of Rao US 4,499,473. Meierbachtol is silent about having a phase shifter and an attenuator connected in series. However, having a phase shifter and attenuator is well known, and having them in series is also well known. Rao teaches a cross polarization compensating technique for a monopulse dome antenna, using phase shifter and attenuator in series (see col. 5 lines 33-41). It would have been obvious to use the phase shifters and attenuator in series to provide the desired phase offset.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meierbachtol US 6,275,182 in view of Claborn et al. US H173. Meierbachtol is silent about having a pair of phase shifters and a power divider connected to the phase shifters. Claborn teaches a power divider 22 connected to phase shifters 20 and 18 (see figure 1). It would have

been obvious to include the phase shifter and the power divider to compensate for errors by steering phase gradient and feed phase correction to the signal.

Allowable Subject Matter

Claims 8, 12, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited to (Ivanov et al.; Burns et al; Peregrim et al; DeLano et al; Hallendorff; Youngren) show various radar systems including compensating for radome errors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isam A Alsomiri whose telephone number is 703-305-5702. The examiner can normally be reached on Monday-Thursday and every other Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isam Alsomiri



November 2, 2004



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